DOCUMENT RESUME

ED 265 382 CE 043 368

AUTHOR Law, Dale A.
TITLE Extension Advisers' Perceptions of Their Jobs and Their Need for Additional Training in Relation to Duties and Demographic Characteristics.
PUB DATE 8 Dec 85
NOTE 21p.; Paper presented at the Meeting of the American Vocational Association (Atlanta, GA, December 6-10, 1985).
PUB TYPE Reports - Research/Technical (143) -- Speeches/Conference Papers (150)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS Agricultural Education; *Competence; *Educational Attitudes; *Educational Needs; *Extension Agents; Extension Education; *Inservice Education; *Job Performance; Needs Assessment; Postsecondary Education; Program Improvement
IDENTIFIERS Illinois

ABSTRACT

A needs assessment was conducted to determine how county cooperative extension advisors in Illinois perceive their duties and what they consider their needs for inservice education. Questionnaires identifying 14 competencies needed by cooperative extension agents were sent to county extension advisors; the 298 that were returned constituted the study sample. Data gathered from these surveys were analyzed using canonical discriminant analysis. The survey found that about 60 percent of respondents had been employed 10 years or less and 29 percent were employed 3 years or less, that one-half were less than 35 years old, that they possessed a great variety of undergraduate degrees, and that they had a strong interest in lifelong learning. A large majority of advisors considered the 14 job duties to be a part of their work responsibility and requested specific inservice programs on these duties. The study also found that inservice education was the primary source of current competence to perform all duties, with undergraduate programs the second most important source. A majority of advisors believed that a new employee should already be able to perform 11 of the 14 duties at the time of original employment. Evaluating program effectiveness was the duty about which advisors considered themselves least competent and most in need of inservice education. The report recommends that the results be used to improve inservice education programs for cooperative extension agents. (KC)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED265382

Presentation of a study of:

EXTENSION ADVISERS' PERCEPTIONS OF THEIR JOBS AND THEIR NEED FOR ADDITIONAL TRAINING IN RELATION TO DUTIES AND DEMOGRAPHIC CHARACTERISTICS

Dale A. Law

American Vocational Association
American Vocational Education Research Association
Recent Doctoral Research Session
Atlanta, Georgia
Sunday, December 8, 1985

CE043368

U.S. DEPARTMENT OF EDUCATION
NATIONAL INSTITUTE OF EDUCATION
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

This document has been reproduced as received from the person or organization originating it.
Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official NIE position or policy.

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

D A Law

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

EXTENSION ADVISERS' PERCEPTIONS OF THEIR JOBS AND THEIR NEED FOR ADDITIONAL TRAINING IN RELATION TO DUTIES AND DEMOGRAPHIC CHARACTERISTICS

Dale A. Law, Ed.D.
Vocational Agriculture Service
College of Agriculture
University of Illinois

Rationale for This Study:

The state administrative staff of the Illinois Cooperative Extension Service recently adopted, in modified form, the results of a national job analysis study of Extension work as being applicable to Illinois and thus defining the work of an Extension adviser (agent).

The national study was commissioned by the United States Department of Agriculture and was to be a job analysis of Extension adviser's positions. The American Institutes For Research conducted the study in eight states, not including Illinois and reported the results in Reaching and Teaching People: A Nationwide Job Analysis of County Extension Agents' Work. Fourteen major duties were identified. The American Institutes For Research used five procedures to arrive at the final 14 duties. Procedures used were interviews, critical incidents, Position Analysis Questionnaires (PAQ), Job Analysis Questionnaires (JAQ), and behavior and other outcome checklists (Brumback, Hahn, and Edwards, 1978). The 14 duties identified were as follows:

1. Assess community needs.
2. Prepare annual plan of work.
3. Prepare specific program plans.
4. Conduct programs.
5. Respond to client requests for specific information.
6. Respond to client requests for technical assistance.
7. Recruit, train, and utilize lay leaders.
8. Evaluate program effectiveness.
9. Report activities, impact, and accomplishments.
10. Develop and maintain public relations.
11. Develop and maintain staff relationships within the Cooperative Extension Service, the University, and the state and federal Departments of Agriculture.
12. Maintain and increase personal professional competence.
13. Perform administrative functions.
14. Supervise staff.

Several important questions arise with regard to the performance of each of these 14 duties by Extension advisers in Illinois. Do advisers indeed perform each of these duties? Should a new employee be able to perform each duty at the time of original employment? How did current

advisers gain their level of competence to perform each duty? How often do they perform each duty? How critical is the ability to perform each duty to their overall success as an adviser? How confident do they feel about their ability to perform each duty. How much need for additional training do they perceive themselves as needing in each duty? Does undergraduate major (technical or behavioral degree) have any relationship to an adviser's perception of criticalness, confidence, and need for additional training? Using selected demographic characteristics of advisers, can any other categories be identified as having any relationship to perceptions of criticalness, confidence and need for additional training? Finally, how should this information be used to build an effective in-service education program?

In-service education as applied to the Cooperative Extension Service has been defined as:

> . . . that phase of organized learning experience which is provided employees by the agency throughout the employment period. It is training directed towards developing understanding of job operations and standards, agency philosophy, policies and procedures, as well as current technical research findings. It includes induction training for new workers and on-the-job training in both subject matter and educational methods for experienced personnel at all levels of the organization. It does not include courses taken as a part of a planned graduate study program leading to an advanced degree (National Task Force on Cooperative Extension Inservice Training, n.d., p. 1).

One consistent characteristic of Extension work is the necessity to shift programs and methods in order to meet the ever-changing conditions and challenges of society. As the organization shifts program emphasis and adopts new methods to effectively fulfill its mission, it must provide continuous professional training of its personnel. The aforementioned definition of in-service education implies a need for continuous review and analysis of the current status of advisers with regard to both their self-perceived needs and the changing needs of the organization. An ascertainment of the current perceptions of advisers with regard to their perceptions of criticalness, confidence, and need for additional training in the 14 duties is necessary in order to provide relevant in-service education programs. Therefore, this study was designed to determine the current status of county Extension advisers with regard to the aforementioned questions and to make recommendations for future in-service education activities.

Problem studied:

The problem addressed by this study was that county extension advisers vary greatly in their competence to perform the various duties

expected of them, and therefore need to be provided with an efficient, effective in-service education program designed to help them improve their competence with regard to each duty. This study was designed to be a needs assessment survey to ascertain the status of advisers with regard to their perceptions of criticalness, confidence in their ability, and need for additional training in each of the 14 duties.

Objectives for This Study:

The primary purpose for this study was to provide a basis for developing effective in-service education programs for county advisers in the Illinois Cooperative Extension Service with regard to the 14 duties that comprise the work of an Extension adviser. This was to be accomplished through an analysis of data obtained from a questionnaire distributed to all county advisers in Illinois. However, only data from advisers who had been employed by the Illinois Cooperative Extension Service for one year or more as of June 1 prior to the data being collected were analyzed and reported in this study.

A secondary purpose of this study was to compare response data between selected categories of advisers. Attention was directed to the relationship of responses between beginning advisers (those with one to three years of employment with the Illinois Cooperative Extension Service) and experienced advisers (those with four or more years of employment with the Illinois Cooperative Extension Service), and to the relationship of responses between advisers who possess an undergraduate behavioral degree and advisers who possess an undergraduate technical degree. Response data was also compared between agriculture advisers and home economics advisers, male advisers and female advisers, and advisers with bachelor's degrees and advisers with advanced degrees.

More specifically, the objectives of this study were:

1. To assess the educational needs of county extension advisers in order to provide a basis for developing effective in-service education programs with regard to specific duties that comprise the work of a county adviser.
2. To compare response data between selected categories of advisers with regard to their perceptions of how critical the ability to perform each duty is to their overall success as an adviser.
3. To compare response data between selected categories of advisers with regard to their perceptions of confidence in their ability to perform each duty.
4. To compare response data between selected categories of advisers with regard to their perceptions of need for additional training for each duty.
5. To develop a profile of currently employed Illinois Cooperative Extension Service county advisers.

6. To develop a set of recommendations based upon the results of this study that can provide a basis for future in-service education program planning.

Dependent Variables

The dependent variables for this study consisted of:

1. Adviser's self-perception of criticalness to overall success in each of the 14 duties;
2. Adviser's self-perception of confidence in ability to perform each of the 14 duties; and
3. Adviser's self-perception of need for additional training for each of the 14 duties.

Independent Variables

The independent variables consisted of selected demographic characteristics of advisers. The independent variables included were:

1. Position title (agriculture, home economics)
2. Type of undergraduate degree (technical, behavioral)
3. Gender (male, female)
4. Years of employment with the ICES (1 to 3, 4 or more)
5. Level of education (bachelor's degree, advanced degree)

Two Samples of the Fifteen Hypotheses Used:

The following hypotheses, stated in research form, were tested and evaluated for strength and direction of association at the .05 level of significance.

H_1: There are significant differences in the perceptions of agriculture and home economics Extension advisers regarding how critical the performance of each duty is to their overall success as an adviser, as measured by the 14 duty scales.

H_2: There are significant differences in the perceptions of Extension advisers with a technical undergraduate degree and advisers with a behavioral undergraduate degree regarding how critical the performance of each duty is to their overall success as an adviser, as measured by the 14 duty scales.

Related Literature:

A review of extension and non-extension literature indicated that in order for an organization to effectively accomplish its stated goals, it must have staff who possess the professional and technical

competencies necessary to perform their assigned duties. A discrepancy may exist between what the organization perceives as its needs, and what staff members perceive as their needs. When this is the case, Mager (1970) suggested several approaches to remedying the problem. One approach is to change, through in-service programs, the actual performance of employees.

Bishop (1976) indicated that the best catalyst for effective in-service education is a relevant, need-oriented, well conceived and organized, instructional improvement program. Sappington, et al. (1977) stated that for in-service education to be effective, it must be about the things and problems that the individuals perceive to be really true and important.

Lavery, et al. (1965) in their study of the extension service, stated that self-evaluation is the first step in self-improvement. Rogers and Olmsted (1957) described an essential aspect of in-service training as determining, on a continuing basis, the needs and problems of advisers.

Clifton (1969), after studying the effectiveness of several research methods of determining the in-service needs of extension staff, concluded that a staff survey was the most effective method for identifying in-service needs.

Research Design:

This study was a descriptive comparative study. It was designed to collect and describe specific demographic data about the population and to compare relationships between demographic data and the dependent variables.

The ex post facto design was used because the researcher was not able to exert any direct control over the independent variables due to the fact that they had either already occurred or could not be manipulated, and because it was not possible to randomly assign individuals to the various respondent groups.

Kerlinger (1964) defined ex post facto research as:

> that research in which the independent variable or variables have already occurred and in which the researcher starts with the observation of a dependent variable or variables. He then studies the independent variables in retrospect for their possible relations to, and effects on, the dependent variable or variables. (p. 360)

He further stated that:

> It is not possible, in ex post facto research to assign treatments to groups at random. Thus subjects can 'assign themselves' to groups, can 'select themselves' into the groups on the basis of characteristics other than those in which the investigator may be interested. The subjects and the treatments come, as it were, already assigned to the groups. Self-selection, then, is the research case in which the members of the groups being studied are in the groups, in part, because they differentially possess traits or characteristics. (p. 361-2)

According to Isaac and Michael (1979) this type of study may be regarded as "correlational" as it is concerned with the degree of relationships between multiple variables which can not be controlled or manipulated.

Selection of the Population and Sample:

The population for this research study consisted of county Extension advisers who had completed one year or more of employment with the Illinois Cooperative Extension Service as of June 1 prior to the data being collected. The population was identified from the official employment list provided by the state ICES office and by the respondents' answer to question 19 on the questionnaire.

The sample was a self-selected sample from the population determined by those who returned a completed questionnaire. There were 298 questionnaires completed and returned by respondents eligible to be a part of the sample. It was determined from the percentage (79.68) of returned questionnaires that were usable that the self-selected sample was representative of the identified population.

Instrumentation:

The instrument used for this study was a two-part questionnaire developed by the researcher. Development of the author's research instrument occurred in the following phases: (a) construction of initial job duty questions and demographic data questions; (b) development of a pilot version of the instrument and review by a panel of Extension experts and Agricultural Education Division faculty; and (c) construction of a refined instrument.

The actual items contained in this instrument were developed through use of a panel of experts in Extension and recommendations found in the review of literature. Some questions were asked to obtain data for future use and were considered beyond the scope of this study.

Faculty members of the Agricultural Education staff, Cooperative Extension Service state staff, and Survey Research Laboratory staff of the University of Illinois assisted the researcher in making the instrument clear and concise. All questions were numerically coded to correspond to an 80 column key punch card, to aid in the key punching of returned instruments. The questionnaire was printed in booklet format and consisted of sixteen 8 1/2 by 5 1/2 inch pages.

Analysis of Data:

The data collected from 319 Extension adviser respondents were key punched and verified for analysis. The Statistical Analysis System (SAS) was the software package used to analyze the data. Several statistical operations were performed on the data for each objective.

Frequencies were tabulated for each item on the questionnaire by selected demographic variables. In addition, means, medians, and ranges were reported where appropriate.

Data to test the hypotheses were analyzed using canonical discriminant analysis. This analysis was selected to determine which of the original predictor variables contributed the most to group differences, and to determine if significant group differences exist. Tatsuoka (1971) stated that discriminant analysis is a method for determining linear combinations of the original predictor variables that show large differences in group means. He (Tatsuoka, 1953) proved mathematically that discriminant analysis and canonical analysis yield identical results when the number of groups G is equal to two.

Canonical correlations are also discussed by Nie, Hull, Jenkins, Steinbrenner, and Bent (1975). They stated:

> Canonical correlation takes as its basic input two sets of variables, each of which can be given theoretical meaning as a set. The basic strategy of canonical correlation analysis is to derive a linear combination from each of the sets of variables in such a way that the correlation between the two linear combinations is maximized. Many such pairs of linear combinations may be derived. These canonical variates, as they are known, are essentially equivalent to principal components produced by principal-component analysis, with the exception that the criterion for their selection has altered. Whereas both techniques produce linear combinations of the original variables, canonical correlation analysis does so not with the object of accounting for as much variance as possible within one set of variables, but with the aim of accounting for a maximum amount of the relationship between two sets of variables. (p. 517)

In seeking relationships between two sets of variables, Tatsuoka stated that canonical correlation analysis "identifies the 'components' of one set of variables that are most highly related (linearly) to the 'components' of the other set of variables" (Tatsuoka, 1971, p. 183), and that this technique may be loosely characterized as a sort of "double-barrelled principal components analysis".

Lindeman, Merenda, and Gold (1980) stated that ". . . canonical correlation analysis is the most general analysis, of which multiple regression and discriminant analysis are both special cases". (p. 195) They further indicated (table on page 196) that a researcher should use canonical discriminant analysis when variables in one set are dichotomous and variables in the other set are continuous instead of using multiple regression which requires variables in both sets to be continuous.

According to the SAS Institute (1982), the CANDISC procedure performs a canonical discriminant analysis which

> . . . is a dimension-reduction technique related to principal component analysis and canonical correlation. Given a classification variable and several quantitative variables, CANDISC derives canonical variables (linear combinations of the quantitative variables) that summarize between-class variation in much the same way that principal components summarize total variation. For each canonical correlation CANDISC tests the hypothesis that it and all smaller canonical correlations are 0 in the population. An F approximation (Rao, 1973; Kshirsager, 1972) is used that gives better small sample results than the usual chi-square approximation . . . CANDISC performs univariate and multivariate one-way analyses of variance, and computes and tests Mahalanobis distances for pair-wise comparisons of the classes. (p. 369)

CANDISC was used in this study to find linear combinations of the variables that best summarized the differences among the groups and computes scores for each observation on the linear combinations. The procedure is designed to eliminate missing values; therefore, the N for each group is different.

CANDISC also computed analyses of variance between the dichotomous demographic variables at each dependent variable. A conservative alpha level of $p < .01$ significance level was set for interpreting ANOVA results because 14 ANOVAs were calculated for each CANDISC procedure: this reduced the likelihood of designating a particular variable to be significant when in reality it was not significant.

The last objective was to develop a set of recommendations based upon an interpretation of the results from the previous objectives. Due to the descriptive nature of this study, interpretation of data was based upon practical importance as well as the statistical importance of the data collected.

Conclusions from Demographics:

1. A high percentage (60.[illegible]%) of ICES advisers are not UIUC graduates;
   One-fifth (20.1%) graduated from out-of-state institutions.

2. Many ICES advisers are relatively new employees:
   28.5% have been employed by ICES 3 years or less;
   61.1% have been employed by ICES 10 years or less.

3. One-half (49.9%) of all advisers are less than 35 years old.

4. Advisers possess a great diversity of undergraduate degrees.

5. Advisers have a strong interest in lifelong learning and need in-service opportunities of all types.

Sample Summary From Duty Performance Data:

Duty 4: Conduct Programs

Is duty performed?

Agriculture advisers:	99.2%
Home economics advisers:	100.0%

How often performed?

Weekly:	45.8%
Daily:	32.9%

Source of competence?

In-service programs:	60.8%
Undergraduate program:	25.5%

Should a new employee be able to perform this duty?

Agriculture advisers:	92.7%
Home economics advisers:	75.0%

Duty 5: Respond to Client Requests for Specific Information

Is duty performed?

Agriculture advisers:	100.0%
Home economics advisers:	100.0%

How often performed?

Daily:	91.2%

Source of competence?

In-service programs:	54.1%
Undergraduate program:	32.5%

Should a new employee be able to perform this duty?

Agriculture advisers:	90.0%
Home economics advisers:	90.2%

Conclusions from Duty Performance Data:

1. - A very high majority of agriculture and home economics advisers considered the 14 job duties analyzed in this study to be a part of their work responsibility.
   - Duty 14 (supervise staff) received the lowest rating (79%).
   - Specific in-service programs were requested for each duty.

2. - Most in-service requests were for specific how-to workshops so that advisers might learn to perform new tasks, or to perform present tasks more easily, more efficiently, or more effectively.
   - Requests were for topics that are relevant to situations back home, and for acquiring new skills and knowledge that are readily adaptable for use in home counties.

3. - In-service education, in all its various forms, was the primary source of current competence to perform all 14 job duties.
   - Undergraduate programs were the second most important source of current competence.

4. - A majority of all advisers believed that a new ICES employee should already be able to perform 11 of the 14 duties at the time of original employment.
   - Advisers believed that competence to perform duties
     1 (assess community needs)
     2 (prepare annual plan of work)
     14 (supervise staff)
     could be obtained after employment.

5. - Although agriculture and home economics advisers requested many different in-service programs in their respective technical fields, it should be noted that many of the in-service education requests fall within the subject areas that overlap both agriculture and home economics specialties in the Primary Knowledge Cluster Structure.

6. - A preference was expressed for increased use of TeleNet as an in-service delivery system; however, relating this to the how-to approach to topics important to advisers may present an interesting dilemma.

7. - Major barriers to success:
   lack of time
   red tape
   paperwork
   trying to be all things to all people

8. - Miscellaneous suggestions:
   - development of some type of mechanism for providing opportunities to exchange and share ideas;
   - information about ideas that work in other counties;
   - opportunity to visit exemplary programs in action;
   - development of some type of informational retrieval system relevant to advisers' duties.

Findings From Sample Hypothesis 1:

The first comparison was between the scores of agriculture and home economics respondents on the scale measuring their perceptions of how critical the performance of each duty is to overall success as an adviser. The mean scores obtained from agriculture and home economics advisers are reported in Table 1 (Appendix A) for each of the 14 duties in this comparison. A mean score for the combined group of agriculture and home economics respondents is also included. The closer the mean score is to six, the more critical a particular duty was perceived to be. Agriculture respondents rated all duties with a 4.50 or higher rating, except for duty 9 (reporting activities, impact, and accomplishment).

Home economics respondents rated all duties with a 5.00 or higher rating, except for duties 6 (respond to client requests for technical assistance) and 13 (perform administrative functions). The highest combined group mean rating was for duty 5 (respond to client requests for specific information), and the lowest combined group mean rating was for duty 9 for these two groups. Duty 6 was rated much higher by agriculture respondents (5.61) than by home economics respondents (4.85).

The first research hypothesis (H_1) stated:

> There are significant differences in the perceptions of agriculture and home economics Extension advisers regarding how critical the performance of each duty is to their overall success as an adviser, as measured by the 14 duty scales.

A canonical discriminant analysis was performed on the data to determine whether the variables could discriminate between agriculture and home economics respondents and to test the significant differences between respondents' ratings of criticalness for each of the 14 job duties. The canonical correlation was .69 with an F-value of 9.0983 ($p < .01$; numerator df = 14, denominator df = 142).

An analysis of the standardized discriminant coefficients reported in Table 2 (Appendix B) indicates that the variable with the most power to discriminate between the two groups (overall importance) was duty 9 (report activities, impact, and accomplishment), followed by duty 6 (respond to client requests for technical assistance), duty 2 (prepare annual plan of work), duty 5 (respond to client'requests for specific information) and duty 3 (prepare specific program plans). Taken together, these all define the canonical variable we might call the home economics factor.

The canonical structure reported in Table 2 indicates that there are strong correlations for some of the dependent variables with this factor, which is further demonstrated by the significant differences between groups (agriculture and home economics) from the univariate ANOVAs. Home economics advisers perceive the ability to perform duties 2, 3, 7, and 9 to be significantly more critical to overall success than do agriculture advisers. The negative signs indicate that agriculture advisers perceive the ability to perform duties 5 and 6 to be significantly more critical than do home economics advisers. Therefore, research Hypothesis 1 was accepted with regard to duties 2, 3, 5, 6, 7, and 9, but was rejected with regard to all other duties.

Summary:

1. A very high majority of advisers considered the 14 job duties to be a part of their work responsibility and requested specific in-service programs in each of the duties.

2. In-service education was the primary source of current competence to perform all duties. Undergraduate programs were the second most important source of current competence.

3. A majority of advisers believed that a new ICES employee should already be able to perform 11 of the 14 duties at the time of original employment.

4. Advisers as a whole are highly confident in their ability to perform 8 of the 14 duties, fairly confident in performing 5 of the duties, and not very confident about the other duty.

5. Advisers indicated the greatest need for additional training, and that they had the least amount of confidence in their ability to perform, the duty concerning evaluating program effectiveness.

6. Advisers perceive the ability to perform each of the 14 duties as being critical to their overall success as an adviser.

7. There were significant differences in the perceptions of groups of advisers with regard to criticalness, confidence, and need for additional training.

8. The results provide an excellent data base from which to build efficient, effective in-service education programs.

Recommendations:

Considering the findings of this study, along with the review of related research and literature, several recommendations are suggested for the development of a comprehensive in-service education program for Illinois Cooperative Extension Service advisers.

1. This was a needs assessment study of the perceived in-service education needs of county advisers employed by the Illinois Cooperative Extension Service. The results of this study should be made available to state Extension administrators, regional directors, and individuals responsible for planning and implementing in-service education programs for Extension advisers. The results should also be made available to those who participated as respondents in this study. Thus, the requests and suggestions made by advisers regarding in-service education will be made known to the appropriate people.

2. It is recommended that in-service programs with specific objectives continue to be developed for ICES advisers, but that new programs take into consideration the specific staff needs identified in this study, and that the requests and suggestions shared by advisers through this study be incorporated into these new in-service programs. A significant amount of information relative to the needs of advisers was collected and should be used to provide a basis for planning and delivering in-service education programs.

3. More specifically, it is recommended that in-service education programs be planned for agriculture advisers that will provide them with both proven methods and new and innovative methods of performing duty 5 (respond to client requests for specific information) and duty 6 (respond to client requests for technical assistance).

4. It is also recommended that in-service education programs be planned for home economics advisers emphasizing the performance of duty 2 (prepare annual plan of work), 3 (prepare specific program plans), 7 (recruit, train, and utilize lay leaders), and 9 (report activities, impact, and accomplishments).

5. It is recommended that specific instructional material, behavioral objectives, methodologies, and evaluative techniques be developed for each of the 14 duties, and then shared through in-service education programs with all advisers. Such programs should be presented with the idea in mind that the information shared can be implemented in such a way as to have an immediate impact on county programs, staff, and clientele.

6. It is recommended that increased emphasis be placed upon delivering in-service education programs through the TeleNet system or some similar audio-video delivery system, such as video disc and satellite transmissions. However, caution should be exercised to assure that programs maintain a how-to approach to topics presented.

7. It is recommended that specific undergraduate courses be identified or developed that contain subject matter and problem areas that are relevant to Extension employees with regard to the 14 job duties. And that these courses be recommended to students who are potentially interested in ICES as a career. Consideration should also be given to the development of an undergraduate Extension education major, or joint agricultural and Extension education major.

8. It is further recommended that each adviser be encouraged and assisted in developing a personalized professional improvement plan, incorporating both short and long range needs and goals.

9. It is recommended that consideration be given to developing in-service education courses with such content and depth that they could be offered for credit to assist the large number of Extension advisers who do not currently possess an advanced degree.

10. It is recommended that someone be given responsibility for developing a pilot informational retrieval system in cooperation with county advisers, and making the results known to advisers wishing to implement such a system.

11. It is recommended that advisers be encouraged to continue to identify their in-service education needs and to share these with the appropriate ICES administrative personnel. And it is recommended that this study, in modified form, be replicated periodically to continue to provide an up-to-date basis for in-service education programming in the Illinois Cooperative Extension Service.

Based upon the results of this study, the following suggestions are made for future research:

1. It is recommended that a study similar to this one be replicated periodically to keep up-to-date with the changing staff and staff needs of the Illinois Cooperative Extension Service. Certain modifications are needed regarding length of the questionnaire and some of the questions; specifically, because the confidence scale did not discriminate between the dichotomous demographic variables, it is recommended that it be modified or deleted. In addition, gender as a dichotomous variable could be deleted in a further study.

2. It is recommended that a similar study be conducted with the purpose of determining the specific in-service education needs of youth advisers. Likewise, a future study might concentrate on the needs of advisers with less than one year of employment with ICES.

3. A future study should be conducted to identify and describe more accurately the perceived barriers to greater success in the Extension adviser positions. Particular attention should be given to how experienced advisers have dealt with and overcome, or learned to live with, these barriers.

4. A study should be conducted to more accurately determine the best modes of delivery for in-service programs.

5. A study should be conducted to identify the characteristics of advisers who participate, and those who do not participate, in volunteer in-service education activities.

Appendix A

Table 1

Mean Scores Regarding Perceptions of How Critical the Ability to Perform Each Duty Is to Overall Success by Position Title

Duty	Mean score		
	Agriculture[a]	Home economics[b]	Combined[c]
1. Assess community needs	4.98	5.15	5.06
2. Prepare annual plan of work	4.70	5.48	5.07
3. Prepare specific program plans	5.51	5.81	5.66
4. Conduct programs	5.60	5.79	5.69
5. Respond to client requests for specific information	5.93	5.72	5.83
6. Respond to client requests for technical assistance	5.61	4.85	5.25
7. Recruit, train, & utilize lay leaders	5.13	5.49	5.31
8. Evaluate program effectiveness	4.68	5.05	4.86
9. Report activities, impact, and accomplishment	4.39	5.07	4.71
10. Develop and maintain public relations	5.78	5.69	5.74
11. Develop and maintain staff relationships	5.22	5.13	5.19
12. Maintain and increase personal prof. competence	5.43	5.43	5.43
13. Perform administrative functions	4.94	4.97	4.96
14. Supervise staff	5.15	5.15	5.15

Note. The scale was 1 = not at all critical to 6 = very critical.

[a] $n = 82$. [b] $n = 75$. [c] $n = 157$.

Appendix B

Table 2

Summary of Canonical Discriminant Analysis Relating Position Titles to Perceptions of How Critical Ability to Perform Each Duty Is to Overall Success

Duty	Criticalness[a]	
	Standardized discriminant coefficients	Total canonical structure
1. Assess community needs	-.05	.14
2. Prepare annual plan of work	.53	.59*
3. Prepare specific program plans	.45	.37*
4. Conduct programs	.12	.22
5. Respond to client requests for specific information	-.49	-.37*
6. Respond to client requests for technical assistance	-.61	-.60*
7. Recruit, train, and utilize lay leaders	.16	.31*
8. Evaluate program effectiveness	-.19	.28
9. Report activities, impact, and accomplishment	.70	.45*
10. Develop and maintain public relations	-.09	-.11
11. Develop and maintain staff relationships	-.02	-.07
12. Maintain and increase personal prof. competence	-.08	-.00
13. Perform administrative functions	-.21	.02
14. Supervise staff	.06	.00

Note. Canonical variable: $F = 9.0983$. $p < .01$ based on Rao's approx. (Rao, 1973).

[a] $n = 157$.

* $p < .01$.

LIST OF REFERENCES

Bishop, L. J. (1976). Staff development and instructional improvement --Plans and procedures. Boston: Allyn and Bacon.

Brumback, G. B., Hahn, C. P., & Edwards, D. S. (1978). Reaching and teaching people: A nationwide job analysis of county extension agents' work. Washington, DC: American Institutes For Research.

Clifton, O. B. (1969). Methods of determining inservice training needs of beginning county Extension agents. College Station: Texas A & M University. (ERIC Document Reproduction Service No. ED 047 215)

Isaac, S., & Michael, W. B. (1971). Handbook in research and evaluation. San Diego: Edits.

Kerlinger, F. N. (1964). Foundations of behavioral research. New York: Holt, Rinehart and Winston.

Lavery, W. E., Heckel, M. C., & Johnson, A. C. (1965). Developing job and position descriptions in the Cooperative Extension Service. Madison: National Agricultural Extension Center for Advanced Study.

Lindeman, R. H., Merenda, P. F., & Gold, R. Z. (1980). Introduction to bivariate and multivariate analysis. Glenview, IL: Scott, Foresman and Company.

Mager, R. F. (1970). Analyzing performance problems or 'you really oughta wanna'. Belmont, CA: Fearon/Lear Siegler.

National Task Force On Cooperative Extension Inservice Training. (no date). An inservice training program for cooperative extension personnel. Washington, DC: Author.

Nie, N. H., Hull, C. H., Jenkins, J. G., Steinbrenner, K., & Bent, D. H. (1975). Statistical package for the social sciences. (2nd ed.). St. Louis: McGraw-Hill Book Company.

Rogers, F. E. & Olmsted, A. G. (1957). Supervision in the Cooperative Extension Service. Madison: National Agricultural Extension Center for Advanced Study.

SAS Institute, Inc. (1982). SAS user's guide: Statistics 1982 edition. Cary, NC: Author.

Sappington, E. W., Brown, R. A., Cheatham, D. L., Jones, J. W., Thompson, G., Thornhill, A., & Bonner, J. (1977). Development of a curriculum for professional youth workers. Mississippi State: Mississippi State University.

Tatsuoka, M. M. (1953). The relationship between canonical correlation and discriminant analysis. Cambridge, MA: Educational Research Corporation.

Tatsuoka, M. M. (1971). Multivariate analysis: Techniques for educational and psychological research. New York: John Wiley and Sons, Inc.